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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,188	04/24/2001	Ulf Dahl	0104-0334P	2636
2292	7590	11/22/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			KIM, JUNG W	
			ART UNIT	PAPER NUMBER
			2132	

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,188

Applicant(s)

DAHL, ULF

Examiner

Jung W Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-93 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18-93 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/027,585.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/24/01, 4/26/04, 10/12/04, 10/21/04
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____

DETAILED ACTION

1. Claims 18-93 have been examined. Applicant in the preliminary amendment, filed on October 7, 2004, canceled claims 1-17 and added new claims 18-93.

Priority

2. If applicant desires priority under 35 U.S.C. 120 based upon a previously filed application, specific reference to the earlier filed application must be made in the instant application. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph unless it appears in an application data sheet. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. ____" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an

international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Information Disclosure Statement

3. The information disclosure statement filed April 21, 2001 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it

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is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the Japanese foreign patent documents referred to therein has not been considered.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 55 and 93 are rejected under 35 U.S.C. 102(e) as being anticipated by Thomson et al. U.S. Patent No. 5,751,949 (hereinafter Thomson).

6. As per claim 55, Thomson discloses a computer-readable medium having encoded thereon software for controlling access to a table of data in a database, the software comprising instructions that, when executed by a computer, cause the computer to

- a. maintain, separate from the table of data, information for controlling access to a specified proper subset of data in the table (see Thomson, Figure 4 and related text); and
- b. control access to the data in the proper subset according to the separately maintained information (see Thomson, Figures 5 and 6 and related text).

The aforementioned cover the limitations of claim 55.

7. As per claim 93, Thomson discloses a computer-readable medium as outlined above in the claim 55 rejection under 35 U.S.C. 102(e). In addition, the data in the database is stored in row and column format. See Thomson, Figure 2. The aforementioned cover the limitations of claim 93.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 18, 19, 21, 28, 29, 31, 33, 37, 41, 42, 48, 49, 56, 57, 59, 66-68, 70, 74, 75, 79, 80, 86 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson in view of Denning "Field Encryption and Authentication" (hereinafter Denning).

10. As per claim 18, Thomson discloses a data processing method comprising:

- a. maintaining a database containing a table of data in row and column format (see Thomson, Figure 2 and related text);
- b. maintaining, separate from the table of data, information for controlling access to a specified proper subset of data in the table (see Thomson, Figure 4 and related text); and
- c. controlling access to the specified proper subset of data in the table according to the separately maintained information (see Thomson, Figures 5 and 6 and related text).

11. Thomson does not disclose at least a portion of the data being encrypted.

Denning teaches a method of field encryption to secure information stored in tables having row and column format wherein each record is encrypted and stored using a distinct cryptographic key. See Denning, page 233, section 2.2. It would be obvious to one of ordinary skill in the art at the time the invention was made for a portion of the data stored in a database containing a table of data in row and column format to be encrypted using distinct cryptographic keys for each record to establish a more secure

database. See Denning, page 233, sections 2.1 and 2.2. The aforementioned cover the limitations of claim 18.

12. As per claim 19, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). In addition, the step of controlling access comprises controlling access by a specified user or group of users. See Thomson, Figure 4, 'USER ID' and 'DEPT' columns. The aforementioned cover the limitations of claim 19.

13. As per claim 21, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). In addition, Thomson discloses a security table separate from the stored data. See Thomson, col. 4, lines 44-54. Although Thomson does not expressly disclose making the security table inaccessible to a user seeking access to the data, means in the art to restrict access privileges to only tables relevant to a given user is a standard implementation in the art. For example, commercial databases, such as Oracle or Sybase, incorporate data dictionaries to define access privileges granted to a user on various schema objects (tables, views, indexes, synonyms). Examiner takes Official Notice of this teaching. It would be obvious to one of ordinary skill in the art at the time the invention was made for the separate table to be inaccessible to a user seeking access to the data. Motivation to combine maintains access to security information on a need to know basis as known to one of ordinary skill in the art. The aforementioned cover the limitations of claim 21.

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14. As per claim 28, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). In addition, the specified proper subset of data comprises a specified column of data. See Thomson, Figure 4, 'USER ID' and Figures 5 and 6. The aforementioned cover the limitations of claim 28.

15. As per claim 29, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). In addition, the information for controlling access comprises information used in encrypting or decrypting data in the proper subset of data. See Thomson, Figure 4 as modified by Denning, page 233, section 2.2, 'Kij'. The aforementioned cover the limitations of claim 29.

16. As per claim 31, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). Thomson does not expressly teach the information for controlling access comprising information identifying an owner of the proper subset of data. However, data ownership is a typical attribute by which to define user access to data. For example, file access on commercial operation systems, such as UNIX, is restricted based on file ownership (user) and group membership. Examiner takes Official Notice of this teaching. It would be obvious to one of ordinary skill in the art at the time the invention was made for the information controlling access to comprise information identifying an owner of the proper subset of data. Motivation to combine uses metadata of stored data to identify user access privileges and to maintain data

privacy as known to one of ordinary skill in the art. The aforementioned cover the limitations of claim 31.

17. As per claim 33, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). In addition, the method further comprises:

- d. receiving a request for access to a particular data element in the table, the particular data element containing encrypted data (see Thomson, Figure 3, 'USER REQUEST' as modified by Denning, page 233, section 2.2);
- e. obtaining, from the separately maintained data, cryptographic information associated with a proper subset of data in the table, the proper subset containing the particular data element (see Thomson, Figure 4 as modified by Denning, pages 238 and 239, section 2.4); and
- f. decrypting the data in the particular data element using the cryptographic information (see Denning, page 239, 1st full paragraph).

The aforementioned cover the limitations of claim 33.

18. As per claim 37, Thomson covers a method as outlined above in the claim 33 rejection under 35 U.S.C. 103(a). In addition, the step of providing decrypted data from the particular data element further includes the step of providing decrypted data from the particular data element when the information from the separately maintained data indicates that the request for access to the particular data element is an authorized

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request. See Thomson, Figures 5 and 6 as modified by Denning, page 239, 1st full paragraph. The aforementioned cover the limitations of claim 37.

19. As per claims 41 and 42, Thomson covers a method as outlined above in the claim 21 and 37 rejections under 35 U.S.C. 103(a). In addition, Denning teaches encrypting data in a first column using first cryptographic information and encrypting data in a second column using second cryptographic information. See Denning, page 233, section 2.2, 2nd sentence. Further, as argued in the claim 20 rejection above, user access restriction to security information is an obvious limitation. The aforementioned cover the limitations of claims 41 and 42.

20. As per claims 48 and 49, they are system claims corresponding to claim 21, and they do not teach or define above the information claimed in claim 21. Therefore, claims 48 and 49 are rejected as being unpatentable over Thomson in view of Denning for the same reasons set forth in the rejection of claim 21.

21. As per claim 56, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). In addition, Denning teaches the set of data as a collection of records having fields. See Denning, Abstract. The aforementioned cover the limitations of claim 56.

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22. As per claims 57, 59, 66-68, 70, 74 and 75, they are method claims corresponding to claims 18, 19, 21, 28, 29, 31, 33, 37 and 56, and they do not teach or define above the information claimed in claims 18, 19, 21, 28, 29, 31, 33, 37 and 56. Therefore, claims 57, 59, 66-68, 70, 74 and 75 are rejected as being unpatentable over Thomson in view of Denning for the same reasons set forth in the rejection of claims 18, 19, 21, 28, 29, 31, 33, 37 and 56.

23. As per claims 79, 80, 86 and 87, they are claims corresponding to claims 41, 42, 48 and 49, and they do not teach or define above the information claimed in claims 41, 42, 48 and 49. Therefore, claims 79, 80, 86 and 87 are rejected as being unpatentable over Thomson in view of Denning for the same reasons set forth in the rejection of claims 41, 42, 48 and 49.

24. Claims 20, 22, 43, 50, 58, 60, 81 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson in view of Denning, and further in view of Pfleeger Security in Computing (hereinafter Pfleeger).

25. As per claims 20 and 22, Thomson covers a method as outlined above in the claim 18 and 21 rejections under 35 U.S.C. 103(a). Thomson does not expressly disclose controlling access by a specified program or a group of programs. However, access control means to information stored in databases are conventionally known in the art to screen a user and/or a program. For example, Pfleeger teaches establishing

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access controls for a specific user or program. See Pfleeger, page 306, 5th full paragraph 4th sentence. It would be obvious to one of ordinary skill in the art at the time the invention was made to control access by a specified program or group of programs since it is known in the art to establish database access control for a user or a program as taught by Pfleeger. Ibid. The aforementioned cover the limitations of claims 20 and 22.

26. As per claim 43, it is a method claim corresponding to claims 20, 22, 41 and 42, and it does not teach or define above the information claimed in claims 20, 22, 41 and 42. Therefore, claim 43 is rejected as being unpatentable over Thomson in view of Denning and Pfleeger for the same reasons set forth in the rejections of claims 20, 22, 41 and 42.

27. As per claim 50, it is a system claim corresponding to claim 22, and it does not teach or define above the information claimed in claim 22. Therefore, claim 50 is rejected as being unpatentable over Thomson in view of Denning and Pfleeger for the same reasons set forth in the rejection of claim 22.

28. As per claims 58 and 60, they are method claims corresponding to claims 20, 22 and 56, and they do not teach or define above the information claimed in claims 20, 22 and 56. Therefore, claims 58 and 60 are rejected as being unpatentable over Thomson

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in view of Denning and Pfleeger for the same reasons set forth in the rejections of claims 20, 22 and 56.

29. As per claims 81 and 88, they are claims corresponding to claims 43 and 50, and they do not teach or define above the information claimed in claims 43 and 50.

Therefore, claims 81 and 88 are rejected as being unpatentable over Thomson in view of Denning and Pfleeger for the same reasons set forth in the rejections of claims 43 and 50.

30. Claims 23-27, 34-36, 38-40, 45-47, 52-54, 61-65, 71-73, 76-78, 83-85 and 90-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson in view of Denning, and further in view of Gaskell et al. "Improved Security for Smart Card Use in DCE" (hereinafter Gaskell).

31. As per claims 23-27, Thomson covers a method as outlined above in the claim 18 rejection under 35 U.S.C. 103(a). Thomson does not teach using a tamper-resistant hardware module to perform a cryptographic operation on the data, wherein at least a portion of the separately maintained information is located on the hardware module, the hardware module comprises a hardware security module and the hardware module is selected from the group consisting of a hardware security appliance and a cryptographic card. Gaskell teaches incorporating smart cards into a data processing method to improve security by incorporating cryptographic authentication means, and decryption

processes and keys stored within the smart devices. See Gaskell, page 3, section 3.1. It would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate smart card technology within the method to provide more secure cryptographic authentication and secure communication between the user requesting access to a database and the database. See Gaskell, section 1. The aforementioned cover the limitations of claims 23-27.

32. As per claims 34-36, they are method claims corresponding to claims 23-27 and 33, and they do not teach or define above the information claimed in claims 23-27 and 33. Therefore, claims 34-36 are rejected as being unpatentable over Thomson in view of Denning and Gaskell for the same reasons set forth in the rejections of claims 23-27 and 33.

33. As per claims 38-40, they are method claims corresponding to claims 23-27 and 37, and they do not teach or define above the information claimed in claims 23-27 and 37. Therefore, claims 38-40 are rejected as being unpatentable over Thomson in view of Denning and Gaskell for the same reasons set forth in the rejections of claims 23-27 and 37.

34. As per claims 45-47, they are method claims corresponding to claims 23-27 and 42, and they do not teach or define above the information claimed in claims 23-27 and 42. Therefore, claims 45-47 are rejected as being unpatentable over Thomson in view

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of Denning and Gaskell for the same reasons set forth in the rejections of claims 23-27 and 42.

35. As per claims 52-54, they are system claims corresponding to claims 23-27 and 48, and they do not teach or define above the information claimed in claims 23-27 and 48. Therefore, claims 52-54 are rejected as being unpatentable over Thomson in view of Denning and Gaskell for the same reasons set forth in the rejections of claims 23-27 and 48.

36. As per claims 61-65, 71-73 and 76-78, they are method claims corresponding to claims 23-27, 56, 70 and 75, and they do not teach or define above the information claimed in claims 23-27, 56, 70 and 75. Therefore, claims 61-65, 71-73 and 76-78 are rejected as being unpatentable over Thomson in view of Denning and Gaskell for the same reasons set forth in the rejections of claims 23-27, 56, 70 and 75.

37. As per claims 83-85 and 90-92, they are claims corresponding to claims 45-47 and 52-54, and they do not teach or define above the information claimed in claims 45-47 and 52-54. Therefore, claims 83-85 and 90-92 are rejected as being unpatentable over Thomson in view of Denning and Gaskell for the same reasons set forth in the rejections of claims 45-47 and 52-57.

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38. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson in view of Denning, and further in view of Johansson et al. International Publication Number WO 95/15628 (hereinafter Johansson).

39. As per claim 30, Thomson covers a method as outlined above in the claim 29 rejection under 35 U.S.C. 103(a). Thomson does not disclose the information used in encrypting or decrypting data comprises information identifying a way of encrypting or decrypting data in the proper subset of data. Johansson teaches storing information identifying a way of encrypting or decrypting data for given stored information. See Johansson, page 6, lines 7-8; page 12, lines 9-14. It would be obvious to one of ordinary skill in the art at the time the invention was made for the information used in encrypting or decrypting data comprising information identifying a way of encrypting or decrypting data in the proper subset of data to ensure correct cryptographic processing wherein encrypted data is re-encrypted using an encryption algorithm distinct from the original encryption algorithm. See Johansson, page 2, last paragraph-page 3, first paragraph. The aforementioned cover the limitations of claim 30.

40. Claims 32, 44, 51, 69, 82 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson in view of Denning, and further in view of Abraham et al. U.S. Patent No. 5,148,481 (hereinafter Abraham).

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41. As per claim 32 and 44, Thomson covers a method as outlined above in the claim 18 and 41 rejections under 35 U.S.C. 103(a). Thomson does not expressly disclose the first and second information are stored, in encrypted form, outside of the table. Abraham teaches storing encrypted key values for encryption/decryption algorithms in a plurality of devices including cryptographic accelerators and smart cards. See Abraham, col. 7, lines 42-50. It would be obvious to one of ordinary skill in the art at the time the invention was made for the first and second information to be stored, in encrypted form, outside of the table to secure cryptographic information used to secure data as known to one of ordinary skill in the art and as taught by Abraham. Ibid. The aforementioned cover the limitations of claims 32 and 44.

42. As per claim 51, it is a system claim corresponding to claims 32 and 48, and it does not teach or define above the information claimed in claims 32 and 48. Therefore, claim 51 is rejected as being unpatentable over Thomson in view of Denning and Abraham for the same reasons set forth in the rejections of claims 32 and 48.

43. As per claim 69, it is a method claim corresponding to claims 32 and 56, and it does not teach or define above the information claimed in claims 32 and 56. Therefore, claim 69 is rejected as being unpatentable over Thomson in view of Denning and Abraham for the same reasons set forth in the rejections of claims 32 and 56.

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44. As per claims 82 and 89, they are claims corresponding to claims 44 and 51, and they do not teach or define above the information claimed in claims 44 and 51.

Therefore, claims 82 and 89 are rejected as being unpatentable over Thomson in view of Denning and Abraham for the same reasons set forth in the rejections of claims 44 and 51.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goldstein U.S. Patent No. 5,963,642.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung W Kim whose telephone number is (571) 272-3804. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571) 272-3799. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

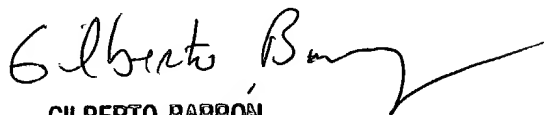
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jung W Kim
Examiner
Art Unit 2132

Jk
November 16, 2004



GILBERTO BARRON
SUPERVISORY PATENT EXAMINER
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